GEOGRAPHIC NEWS BULLETINS

Published Weekly by

THE NATIONAL GEOGRAPHIC SOCIETY

(The National Geographic Society is a scientific and educational Society, wholly altruistic, incorporated as a non-commercial institution for the increase of geographic knowledge and its popular diffusion. General Headquarters, Washington, D. C.)

Contents for Week of May 12, 1941. Vol. XX No. 11.

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2. Expedition Discovers Large Cache of Mexican Jade Objects
3. Historic Thermopylae No Longer a Narrow Pass
4. Strategic Materials: No. 6, Mica the "Cellophane" Rock
5. Index Surveys 42 Years of Geographic Developments

Photograph by Richard H. Stewart

MINING FOR FACTS, THE ARCHEOLOGIST DIGS UP A LOST CIVILIZATION

Under the tropical sun of Mexico's Veracruz State, archeologists have just finished the third season of exploring with an expedition sponsored jointly by the National Geographic Society and the Smithsonian Institution. Gently scraping away the earth, the trowel reveals variously shaped pottery buried by the Indians for use of their dead, possibly 2,000 years ago or more, according to customs now forgotten and unexplained. Among the material unearthed by the past season's work were 700 objects carved from jade, the stone which early Mexicans valued above gold and obtained from sources yet undiscovered by modern scientists (Bulletin No. 2).

HOW TEACHERS MAY OBTAIN THE BULLETINS

The Geographic News Bulletins are published weekly throughout the school year (thirty issues) and will be mailed to teachers in the United States and its possessions for one year upon receipt of 25 cents (stamps or money order); in Canada, 50 cents. Entered as second-class matter, Jan. 27, 1922, Post Office, Washington, D. C., under act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of Oct. 3, 1917, authorized Feb. 9, 1922. Copyright, 1941, by National Geographic Society, Washington, D. C. International copyright secured. All rights reserved. Quedan reservados todos los derechos.

UMI

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Halifax Offers Short Cut to British Aid Shipments

PERMISSION for American ships to deliver war materials to Halifax, Nova Scotia, for shipment to Great Britain, would shorten the hazardous Atlantic crossing of munitions from New York to Scottish ports by about 700 miles. The value of opening the Canadian port to U. S. ships, and thus giving supply shipments a short cut to Britain, has been widely discussed.

Halifax also is 550 miles nearer to Greenland than is New York, and would serve as a convenient stop for American ships en route to new bases on the Arctic island. The port has a large drydock and ship repair facilities. It has been the refueling and supply base for the International Ice Patrol Service that warns North Atlantic shipping of iceberg hazards.

Processes Fifty Million Pounds of Fish

As an Atlantic port terminus of Canadian railways, Halifax is already a great shipping center. It is seldom closed by ice, while the St. Lawrence normally is frozen over in winter.

Halifax Harbour ranks among the best and busiest on North American coasts, and is connected with ports of this hemisphere and Europe by thirty-six steamship lines. The harbor channel has a depth of 50 feet and extends ten miles inland to a landlocked basin ten square miles in area (illustration, next page).

The port, conveniently near the Grand Banks fisheries, is a distribution center for cod and halibut, salmon, cod liver oil, and other fisheries products. Some fifty million pounds of fish are processed in a single Halifax plant in a year.

During the World War Halifax was the port of departure for convoys of troops and store ships from the Atlantic Coast as far south as Virginia.

Has Had Long Naval Career

In Revolutionary War times, it was an active British naval base. In the War of 1812, British forces from Halifax occupied the port of Castine, Maine, and collected in port duties there about $50,000, which was later used to build Dalhousie University in Halifax. The port figured also in the War Between the States.

The foundation of the city dates from 1749, when a stockade was built by British settlers as protection against the French and their Indian allies.

The site originally intended for the city was a pine forested area of 200 acres at the south end of the peninsula on which Halifax is located. It now is Point Pleasant Park, once a popular dueling ground. An early fortification remains in the park, a round tower built by the father of Queen Victoria.

One of the notable sights of the city is Province House, the "Capitol" of Nova Scotia. This stately relic of Georgian architecture is decorated with patterns showing the port's close connection with British possessions in the Caribbean—corals, sea shells, and seaweeds, inspired by Caribbean islands in the days when Halifax shipping dealt with West Indies sugar and rum. A pioneer town in Canadian history, Halifax had the Dominion's first printing press and newspaper, first dockyard, first public school, first Protestant church, and first post office.

Now strongly fortified, with a population booming beyond its peacetime 75,000, Halifax is the chief Imperial Military and Naval Station in Canada.

Note: See also "Salty Nova Scotia," with 2-page map (pp. 580-581), *National Geographic Magazine*, May, 1940; "Flying Around the North Atlantic," September, 1934; and "Canada from the Air," October, 1926.

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Photograph by Richard H. Stewart

TEMPLES, A CITY HALL, AND PLAZAS OF A MEXICAN CITY OLDER THAN CAESAR'S ROME FELL PREY TO THE JUNGLE

A carved stone, bearing the oldest date yet found in the Western Hemisphere, indicates that Indian cities of thatched homes and pretentious public buildings were flourishing in Mexico's State of Veracruz in the 3rd century B. C. The low mound where workmen are digging (right of center, middle ground) was the raised platform on which a temple once stood; higher mounds beyond mark the site of units of the city's civic center. The buildings were spaced around ample park-like plazas. Now called Tres Zapotes, this vanished city was studied by the joint archeological expedition sponsored by the National Geographic Society and the Smithsonian Institution (Bulletin No. 2).

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Expedition Discovers Large Cache of Mexican Jade Objects

A CACHE of more than 700 jade objects, probably the largest discovery of the sort ever made in the Americas, has been excavated in southeastern Mexico by a joint archeological expedition of the National Geographic Society and the Smithsonian Institution. The jade was found in a mound near the village of Paso del Bote, about 40 miles south of the port of Veracruz in Veracruz State.

Announcement of the discovery, which Matthew W. Stirling, expedition leader, described as the "most spectacular" in three seasons of Mexican explorations, was made as the expedition broke camp last month to return to the United States.

Mound Gives Up Treasure

Stirling, Chief of the Bureau of American Ethnology of the Smithsonian Institution, wrote Dr. Gilbert Grosvenor, President of the National Geographic Society, that the jade objects included a number of human figurines, collars, pendants, axes, heads, large tubular and spherical beads, and articles whose use he did not know. There were 70 large circular ear plugs, ranging up to 4½ inches in diameter.

The Geographic-Smithsonian expedition has been seeking clues to the origins of the ancient Indian civilizations of Middle America. In its first season it unearthed a colossal stone head at Tres Zapotes, Veracruz (illustration, inside cover), and a monument carved with Maya Indian symbols which scientists consider the earliest recorded date yet found in the Western Hemisphere. By a correlation with the modern calendar, the date is equivalent to November 4, 291 B. C.

In the second season the expedition discovered, among other monuments, five more colossal heads sculptured in stone. Each weighed 15 tons or more. They were uncovered near the village of La Venta in the State of Tabasco.

For centuries the only sources of jade known to modern man were those in China, Burma, Turkestan, New Zealand, and Siberia. The discovery of jade objects in Europe and in Middle America led to the theory that prehistoric commerce carried the polished green pebbles to distant continents from the Orient, where China had already developed the art of carving jade by the 11th century B. C. Mexican jade carvings, such as the Tuxtla Statuette (illustration, next page), inspired for some years the conjecture that pre-Conquest Indians of the Americas imported the green stone either across the Pacific or by land through Siberia and Alaska.

Mexican Jade, from Unknown Source, Differs from Chinese

The theory of prehistoric jade trade, however, began to collapse with the finding of deposits of the stone in Europe, Alaska and Wyoming.

Two principal kinds of stone have long been recognized among man's treasures of jade—jadeite and nephrite. Analysis has revealed, however, that Mexican jade is chemically different from both, showing a mixture of the minerals in the other two kinds. Tuxtlite, a name taken from the Tuxtla Statuette, has been chosen to designate Mexican jade. Because of its chemical difference, it is evident that the latter did not originate in Oriental mines. But the sources of tuxtlite, although well known to the ancients, are lost to modern man.

Including jade under their word for precious stones, *chalchihuitl*, pre-Conquest Mexicans valued it above gold. Bernal Diaz del Castillo, who conquered Mexico with Cortés, wrote of Montezuma's Aztec jade jewels worth two cartloads of gold each; being unfamiliar with jade, the Spaniards mistook it for inferior emeralds.

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Photograph from J. A. Wilson courtesy Royal Canadian Air Force

HALIFAX THRIVES BESIDE A FRIENDLY BOTTLENECK THAT OFFERS SHELTER TO SHIPS

The capital city of Nova Scotia stands on a peninsula beside the Narrows, the watery "bottleneck" connecting Halifax Harbour to the southeast (foreground) with Bedford Basin to the northwest (background). In the latter, a sheltered landlocked basin of ten square miles, the entire British fleet could be hidden from the North Atlantic storms. It was in Halifax Harbour, in 1917, that the ammunition ship *Mont Blanc* was rammed by the *Imo*, setting off the *Mont Blanc* cargo of explosives. The resulting blast killed almost 2,000 persons and wounded nearly 6,000. A one-ton anchor shank was carried three miles inland by the force of the TNT. Much of the waterfront section has been rebuilt since the explosion, which destroyed property valued at $35,000,000.

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Historic Thermopylae No Longer a Narrow Pass

THERMOPYLAE, scene of the historic engagement in April, 1941, in the Nazi advance through Greece, has changed from a narrow pass into a swampy plain since its heroic defense 24 centuries ago by Leonidas and his brave Spartan band.

At the time of the epoch-making battle in August, 480 B. C., between defending Greek forces under Leonidas, King of the Spartans, and the invading Persian hordes under Xerxes, the pass was less than 200 feet wide. It was an easily closed defile between the overhanging cliffs of Mount Oité and the Gulf of Lamía, which separates the east central coast of Greece from the island of Evvoia.

Through the years, however, the sea has receded, as rushing mountain streams have deposited silt along the shore. New land has been built up, so that the ancient pass has been widened into a marshy plain one and a half to three miles wide. Canals drain a portion of the swamp, which is covered with underbrush.

Hot Springs Gave Pass Its Name

Thermopylae, meaning "hot gates" or "hot pass," took its name from hot springs, once sacred to Hercules, which still issue close to the foot of the mountain. The ground around the springs is encrusted with white sulphur deposits, while the water, as it flows away, becomes a bright bluish green.

On this memorable battlefield of the 5th century B. C., the invading hordes of perhaps 180,000, recruited from both Medes and Persians, far outnumbered the Greeks. In addition to his personal following of 300 chosen Spartans, all fathers of sons, Leonidas was at the head of an allied Greek army made up of contingents totaling five or ten thousand from a dozen other city-states. These troops varied in number and in loyalty during the three days of battle.

Despite this disparity in numbers, the Greeks stoutly resisted Xerxes' barbarian invaders, who were unable to bring their full force to bear upon the defenders because of the narrowness of the pass between the mountains and the swampy seacoast.

Fifth-Column Betrayal

When the Medes failed, Xerxes sent against the Greeks his crack soldiers whom he called the "immortals." They made no more impression on the Greek wall than the Medes had done, and successive efforts failed, with great losses.

After two days of unsuccessful fighting, Xerxes was visited by some traitorous Greeks, particularly one named Ephialtes, who revealed to him the existence of a path over the mountains to the other end of the pass. That night Ephialtes led the 10,000 "immortals" up the mountain trail.

At dawn a small Greek force of a thousand unexpectedly confronted the Persians near the top of the trail, but the Greeks were driven up the mountainside, and the invaders descended the trail to the south end of the pass of Thermopylae. The Greeks remaining loyal to Leonidas, some 300 Spartans and 700 Thespians, advanced to a wider part of the pass and came into conflict with the Persians, who were driven by the whips of their officers.

Leonidas fell early in the engagement, and four times his followers repelled the Persians to recover his body. Bottled up between the two parts of the Persian forces, the Greeks retired to the narrowest part of the pass, fighting with their swords after their long spears were broken. The diminishing Greek force later

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Among some Mexican Indians a string of jade around the wrist was an insignia of nobility, and common people wore only imitations. Montezuma's Tribute Roll showed communities in southern Mexico paying their taxes in jade, some sending as much as three necklaces every six months. These tax rolls, studied for clues to deposits of the stone, point to places now in the five southern States of Guerrero, Oaxaca, and Chiapas on the Pacific and Veracruz and Puebla on the Atlantic. In fact, the Spaniards found that the Atlantic coast near Veracruz was called Chalchiuhcuecan, incorporating the term for jade.

Note: Some of the discoveries of the National Geographic Society-Smithsonian Institution Expeditions of 1939 and 1940 to Mexico are described in "Great Stone Faces of Mexico," *National Geographic Magazine,* September, 1940; and "Discovering the New World's Oldest Dated Work of Man," August, 1939.

And in the GEOGRAPHIC NEWS BULLETINS: "Explorers Made Important Finds in 1940 in Spite of War Menace," January 13, 1941; "Expedition Finds Five Huge Carved Heads in Mexico," April 15, 1940; "Earliest Recorded Date Known in New World Encourages Explorers," January 15, 1940; "Vera Cruz Finds Extend Limits of Maya Culture," March 6, 1939.

Bulletin No. 2, May 12, 1941.

Photograph by Willard R. Culver

HE TOLD HIS AGE AND GAVE HIS NAME TO MEXICAN JADE

Near San Andrés Tuxtla, a peon's plow in 1902 turned up this little three-cornered figure carved from a chunk of mottled grayish green jade, 6½ inches high, the Tuxtla Statuette. The dots and dashes down his front turned out to be an Indian date, correlating with 98 B. C. by the European calendar. Merry eyes and round ear plugs top his mask shaped like a duck's bill, his folded wings, and carved lines suggesting the legs and feet of a bird (left, between wing and base). In honor of the Tuxtla Statuette, Mexican jade has been called tuxtlite.

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Strategic Materials: No. 6, Mica the "Cellophane" Rock

THE GRANDFATHER of the vast mining activities of North America may be mica, since clues to Indian history indicate that it was possibly the first mineral mined on the continent. The glittering rock, from which transparent films thinner than tissue paper can be peeled off, was less essential to the Indians, however, than to the electric-minded United States of today, now that mica is known to be one of the best electrical insulating materials in existence. Of low-grade "scrap" mica this country is the leading producer. But of high-grade "block" mica, although consuming more than any other nation, the United States produces virtually none, and because of this deficiency has declared it a strategic material.

The flashing, flexible, transparent mineral, sometimes confused with isinglass, affects the eyes, ears, wings, and wheels of the modern army or navy; for radios, airplanes, automobiles, and electrical equipment operate by virtue of mica.

India, Where Jewels Are By-Products of Spark Plugs

In addition to its electrical uses for insulation, mica is the "plug" in a spark plug, that vital element in starting any internal combustion engine. Called "cigarette mica" because it is rolled, a thin film of the glassy mineral covers the plug's central wire, with "washers" of the same material around it. Until spark plugs are made with ceramic cores instead, mica will be an essential factor behind much of America's mechanized motion.

It is to the Orient that the New World looks for most of its mica imports, where primitive mines in India supply about 75 per cent of the world's high-grade output. The "Bengal ruby" mica of Bihar, showing a characteristic reddish tint, comprises four-fifths of India's production, from crude mining pits sometimes 300 feet deep. Madras yields a greenish-tinged variety, from open quarries. Rajputana mica has the semi-precious stone, beryl, as a by-product.

A considerable percentage of the earth's crust consists of mica, but India has it in its most usable form. In mica, nature provides man with a rough, clear, ready-to-use "cellophane" made of rock, which needs only trimming to the desired size and thinness before it goes into service. It occurs embedded in rock in six-sided mineral crystals, sometimes ten feet across in the best Indian deposits. From clear, or muscovite, mica, the color ranges through green, amber, and red to dark brown. The crystals, called "blocks" or "books," have the peculiarity of splitting up easily into any number of tissue-thin, full-length layers. A "book" the size and thickness of a playing card can be torn into 20 firm, flexible "pages," called "splittings." From five to 10,000 such splittings can be segmented from a one-inch thickness of mica, depending on the operator's skill.

Strategic materials, according to official definition, are "those essential to national defense, for the supply of which, in war, dependence must be placed in whole, or in substantial part, on sources outside the continental limits of the United States; and for which strict conservation and distribution control measures will be necessary."

The GEOGRAPHIC NEWS BULLETINS are presenting a series of articles on the following strategic materials, describing their uses, qualities, and sources:

Antimony	*Mercury (No. 5)*	*Quinine (No. 2)*
Chromium	*Mica (No. 6)*	*Rubber*
Coconut Shell Char	*Nickel (No. 1)*	*Silk*
Manganese	*Quartz Crystal*	*Tin*
Manila Fiber (No. 4)		*Tungsten (No. 3)*

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withdrew to form a compact body on a near-by hillside, where they finally were surrounded and slain, one by one, still fighting.

The historian Herodotus records the erection of a monument to the Spartan "battalion of death," adorned with two lions and bearing an inscription, "Go stranger, tell the Spartans that we lie here in obedience to their laws." A French archeologist found the base of the monument where the heroes fell, but the two lions were gone. Quantities of Persian arrows have been unearthed in the vicinity.

Two hundred years after Xerxes' victory, a force of 25,000 Greeks held Thermopylae for months against more than 170,000 Gauls, but the invaders eventually found a way over the mountains. In 191 B. C. Roman soldiers made a detour there, which gave them victory over 10,000 men led by Antiochus III of Syria.

Note: Additional descriptions of the ancient and present-day battleground of Greece will be found in "Classic Greece Merges into 1941 News," *National Geographic Magazine*, January, 1941; "Today's Evidence of Grecian Glory," March, 1940; "New Greece, the Centenarian, Forges Ahead," December, 1930; "Cruising to Crete," February, 1929; "Seeing 3,000 Years of History in Four Hours," December, 1928; "History's Greatest Trek," November, 1925; "Glory That Was Greece," December, 1922; and "Whirlpool of the Balkans," February, 1921.

And in the GEOGRAPHIC NEWS BULLETINS: "Evacuated Grecian Thrace Was Populous, Productive Region," April 28, 1941; "Battle-Scarred Thessalonike a World War Veteran," March 17, 1941; "Greece Safeguards Treasured Sculptures and Architecture," February 24, 1941; "Soldiers in Skirts: The Evzones of Greece," December 16, 1940; "Greece and Italy, Now First-Time Modern Foes," December 9, 1940; "Crete: Greek Key to Mediterranean Naval Strategy," December 2, 1940; "Embattled Greece, Where History Repeats Itself," November 18, 1940; and "Why Are the Balkans the 'Powder Keg of Europe?' " November 4, 1940.

Past and present battle lines of Greece may be traced on The Society's Map of the Classical Lands of the Mediterranean. This map is priced at 50¢ (paper) and 75¢ (linen).

Bulletin No. 3, May 12, 1941.

Photograph by B. Anthony Stewart

FROM SPARTANS TO EVZONES, THERMOPYLAE HAS DEEP MEANING FOR GREECE

Of the three hundred Spartans and seven hundred Thespians who perished with King Leonidas at the pass of Thermopylae, the modern Greek descendants are represented by the evzones in their famous ballet-skirted *fustanella*. For the evzones, as for the Spartans of 480 B. C., Thermopylae meant defeat in defense of their homeland. The modern soldiers were photographed beside the World War memorial tomb of the Greek Unknown Soldier in Athens.

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Index Surveys 42 Years of Geographic Developments

"U. S. ESTABLISHES Bases in Greenland." "Red Sea Opened to U. S. Shipping by President." "Nazi-British Battle Raging in Greece." While thus in dizzying succession read day-to-day headlines, teachers, students, Americans in all walks of life are asking "Why? Where? What?" about a rapidly changing world.

The new *Cumulative Index to the National Geographic Magazine,* covering the years 1899 through 1940, helps to answer many of these questions.

Look under the heading GREENLAND, for instance, and you find that articles on this largest but little-known island date as far back as 1900. National Geographic staff photographers made there the first series of successful natural color photographs taken in the Arctic, published in The Magazine in March, 1926.

Articles Describe Scenes of War and Tension

Near Greenland—in the *Index* as well as in today's headlines—lies Greece. In all, the *Index* lists 22 articles and photographic series on Greece, with additional references to Crete, island of the Minotaur and present-day battle base.

Moving south and east the student of world affairs, with the *Index* at his elbow, finds stories on Aden and Suez, Ethiopia and Eritrea, Libia and Egypt, Iraq and Turkey. The European belligerents, England, Germany, and Italy are represented with 38, 29, and 41 references respectively.

For "Information, Please" on the Netherlands Indies and Singapore, centers of Far East tension and sources of four of the world's strategic commodities, tin, rubber, oil, and quinine, the *Index* points to answers in articles covering developments since the turn of the century.

Through the use of the map index section of the *Cumulative Index,* the history of Europe's last twenty years can be traced (illustration, next page).

Unique feature of the new *Index* is the listing under the heading STATE ARTICLES of 38 articles on the various States of the Union. Supplementing the UNITED STATES listing, this heading puts at the reader's fingertips a complete key to the material published by The Society on the United States.

89 Listings for Aeronautics Since 1903

Thirty-five years ago, The Society began its own "good-neighbor" policy toward Latin America. See "What the Latin American Republics Think of the Pan-American Conferences," August, 1906. The 89 references under ALASKA, since the earliest in 1899, span the period from gold rush days to air bases, from unknown frontier wilderness to vital northwestern center of national defense.

For the introduction to the *Index,* Dr. Gilbert Grosvenor has written an account of The Society's history and achievements. A list of the expeditions sponsored by The Society runs the gamut of geographic subjects from studying the eruption of Mont Pelée in Martinique in 1902 to discovering the Valley of Ten Thousand Smokes in Alaska, from animal collecting in the Netherlands Indies to balloons taking off for the stratosphere from the Black Hills of South Dakota, from an eclipse expedition to the mid-Pacific to archeological excavations in Peru. Names of explorers to whom The Society has awarded medals read like a geographic Hall of Fame: Amundsen, Peary, Byrd, Shackleton, Ellsworth, Stefansson, and others.

The *Index* also serves as a key to many other-than-geographical subjects which have been treated in the *National Geographic Magazine.* Under AERO-

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Before the widespread use of glass, mica was much in demand for its decorative glitter, to make the spangles on religious statues, and for its transparency. It formed the portholes on ships, the panes of small windows, the peepholes in many stoves and furnaces. Thick plates of mica were then at a premium, the thinner films cast aside. But now perhaps nine out of ten of its modern uses are connected with electricity, and thin films, formerly wasted, are required. India dominates the world market for high-grade mica because of the abundance of skilled labor, chiefly women and children, capable of "rifting" mica blocks by hand into splittings averaging one-thousandth of an inch thick. Thinness heightens its strategic value.

Most of India's pre-war sales of block mica splittings went to Britain and the United States, with Germany as third-ranking purchaser.

The United States imported more than twelve million pounds, supplementing Indian mica with smaller quantities from Madagascar, South Africa, Canada, Brazil, and Argentina. Imports usually supply the country's electrical needs, for such uses as armature winding-tape, transformers, spark plugs, and transmitter or receiver condensers. Of the domestic mica, almost none is suitable for the larger sheets and the thinner splittings. It serves, however, for the heating elements in toasters and electric irons and other household appliances, as well as for some radio uses. The bulk of domestic production is ground up for use in rubber, wallpaper, paint, and roofing materials.

For seventy years North Carolina has been the chief home source of mica (illustration, below). The Sink Hole mine is believed to have been worked by far-wandering 16th century Spaniards, and by the Indians before them.

Bulletin No. 4, May 12, 1941.

Photograph by Clifton Adams

A SLIVER OF NORTH CAROLINA ROCK MAY LEARN TO MAKE RADIO MUSIC

About three-fourths of the sheet mica which is found in the United States—barely a third of what the country requires—comes from the two States of New Hampshire and North Carolina. The latter produces almost as much as 18 other States combined, some 400,000 pounds. In the western part of the State, North Carolinians in the trimming sheds use small wedges to peel leaf-thin sheets of mica off tablet-shaped blocks called "books," then trim them with knives into two-inch squares (right foreground). Called "radio sheet" because of its principal uses, this sheet mica goes into bridges for radio tubes and into condensers as well as into spark plugs for automobiles and airplanes.

NAUTICS alone are listed 89 references. An early article by Alexander Graham Bell deals with the inventor's contribution to the theory of flight from his experiments with kites, "Tetrahedral Principle in Kite Structure," June, 1903. The latest article in December, 1940, records current aviation history with 39 illustrations.

Or do you prefer butterflies to airplanes? Whales to ships? The student of science or cultural subjects can choose from articles under headings such as these: ARCHEOLOGY, INDIANS, BIRDS, MARINE BIOLOGY, MAMMALS, and PAINTINGS. He can, if he wishes, pre-view the paintings in the new National Gallery of Art, or trace the life history of the Pacific salmon, or perhaps hunt orchids with Dr. David Fairchild on the cliffs of Tobago in the West Indies.

NEW CUMULATIVE INDEX

The *Cumulative Index to the National Geographic Magazine* 1899 *to* 1940 *Inclusive,* in maroon binding, will appear on June 1 at $1.50. Teachers and librarians should find the *Index* particularly helpful because it is cross-referenced by subject and author, with a special section for maps. Supplements to the *Index* will be issued annually at 25¢ each. A pocket for the annual supplement is provided inside the back cover of the volume. Six-months' indexes are available without charge to members and subscribers who request them.

Bulletin No. 5, May 12, 1941.

Photograph by Volkmar Wentzel

MAP-MAKING HANDS KEEP BUSY WITH THE WORLD'S CHANGES

Drawing mountains by hand requires about 2,000,000 pen strokes on a single map. But the lines cause less confusion than man-made changes. In 1921 the National Geographic Society published a historic wall map, "Europe, Showing Countries as Established by the Peace Conference at Paris." When 1929 brought another map supplement of Europe, main changes were the substitution of national names of cities and towns for their English spelling, such as Wien for Vienna, and the indication of main European air routes. But Hitler's annexation of Austria in March, 1938, coincided with the publication of The Society's next Europe map, and boundaries had to be changed. A changed pre-blitzkrieg continent appears on the map of Central Europe and the Mediterranean, as of September 1, 1939; Czecho-Slovakia appears as Bohemia, Moravia, Slovakia, and Carpatho-Ukraine. The map of Europe issued in May, 1940, shows the results of the 1939-40 winter campaigns, with revised boundaries of Finland and the latest partition of Poland.

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